

## Part 1: Multiple Choice

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- |       |       |       |       |
|-------|-------|-------|-------|
| 1. B  | 11. B | 21. B | 31. A |
| 2. A  | 12. B | 22. D | 32. D |
| 3. D  | 13. B | 23. D | 33. B |
| 4. D  | 14. B | 24. C | 34. A |
| 5. A  | 15. C | 25. D | 35. D |
| 6. B  | 16. A | 26. A |       |
| 7. D  | 17. D | 27. C |       |
| 8. A  | 18. B | 28. A |       |
| 9. A  | 19. C | 29. A |       |
| 10. D | 20. A | 30. B |       |

## Part 2: Short Answer Section

#1. a) - jumper's technique  
 - angle of ramp  
 - snow conditions

b) Dependent variable = distance jumped.  
Independent variable = snow conditions

#2. mean ( $\bar{x}$ ) = 24.1  
 median = 22  
 mode = 11, 22

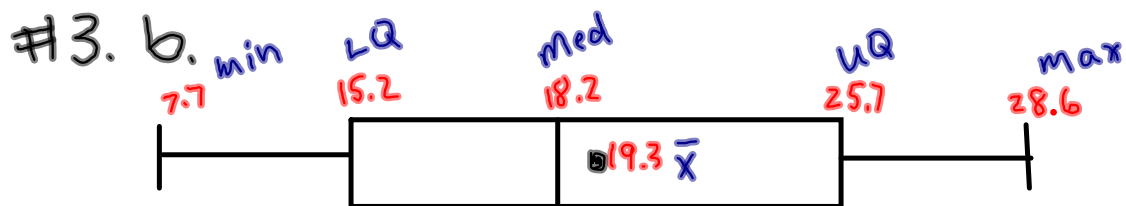
#3. a.

Stem	Leaf
7	7
8	
9	6
10	
11	
12	12
13	
14	2
15	
16	25
17	28
18	5
19	
20	8
21	5
22	
23	0
24	
25	0
26	3
27	16
28	56

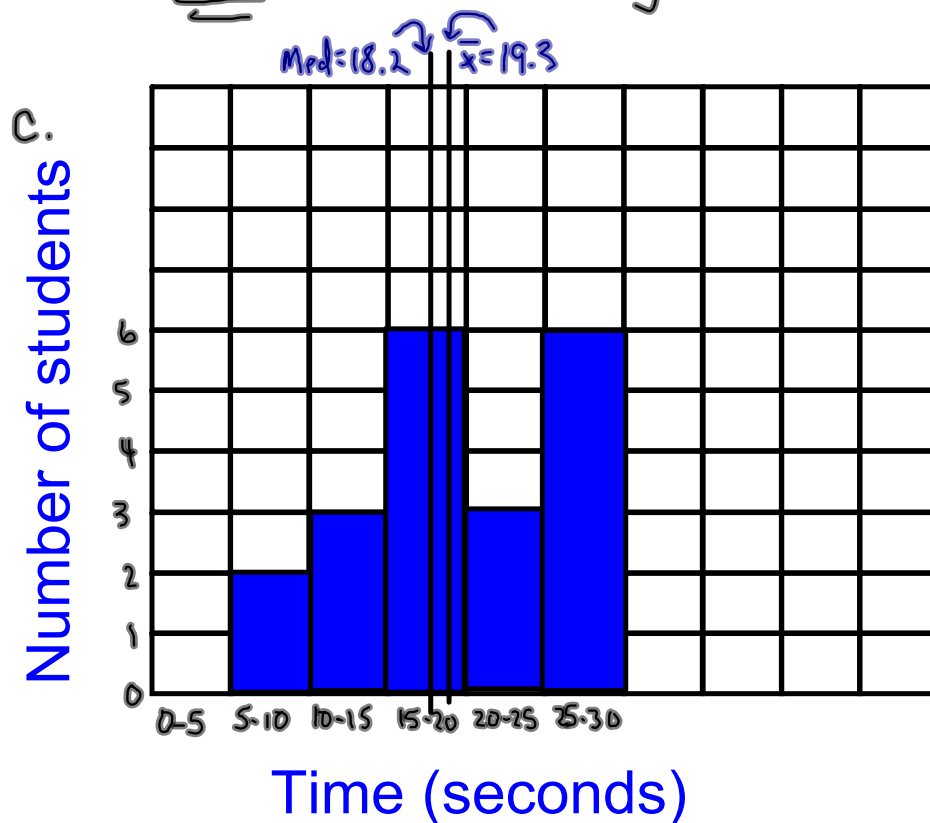
27			
12	22	3	
30	25	35	
8	2	37	

Stem	Leaf
0	2 3 8
1	2
2	2 5 7
3	0 5 7
-	



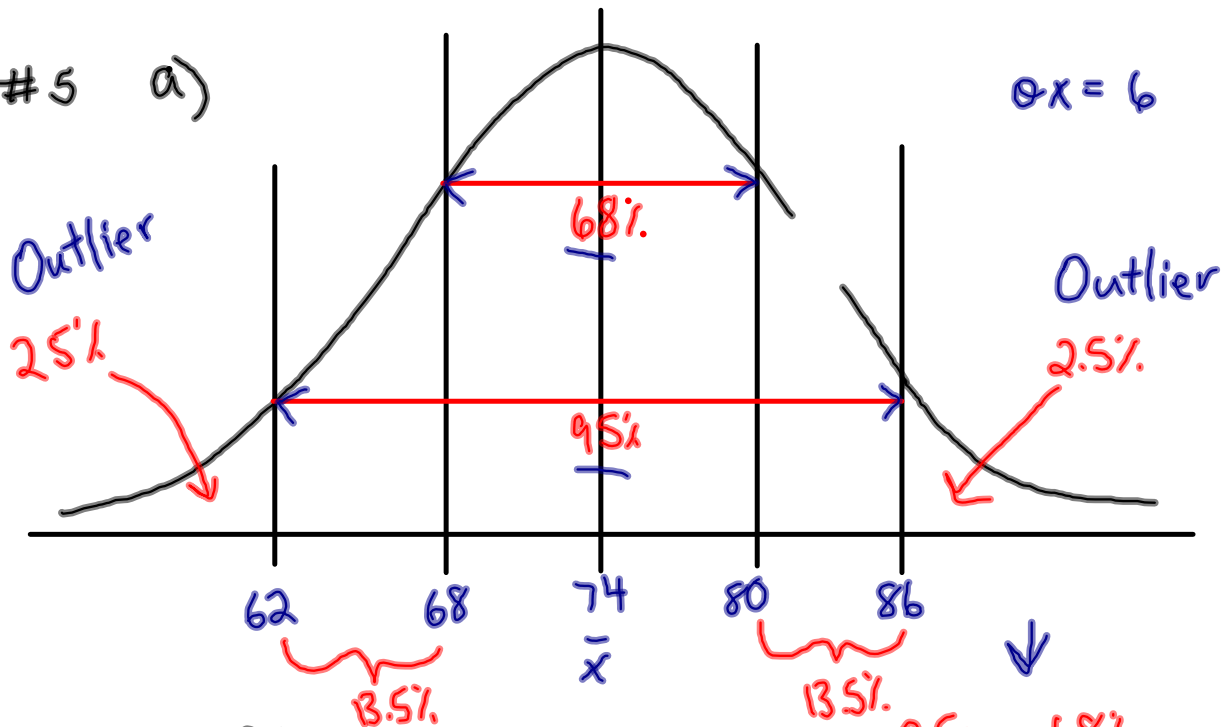
→ This should be done using a number line!



Bin	Tally	Frequency
0-5		
5-10		

#4 Answer is  $\sigma x = 10.7$

#5 a)



b) 95%

c)  $13.5\% + 2.5\%$   
 $= 16\%$

d)  $68\% + 13.5\%$   
 $= 81.5\%$

$$\begin{aligned} 95\% - 68\% \\ = 27 \div 2 \\ = 13.5 \end{aligned}$$

#6. a)  $C = 2.00h + 20.00$

b)  $64.00 = 2.00h + 20.00$   
 $-20.00 \qquad -20.00$

$$\frac{44.00}{2.00} = \frac{\cancel{2.00}h}{\cancel{2.00}}$$

$h = 22.00$

charged for  
22 hours.

#7 a) Option 1:  $C = 0.10d + 5.00$

Option 2:  $C = 0.15d + 3.00$

b)  $0.10d + 5.00 = 0.15d + 3.00$   
 $-0.10d \qquad -0.10d$

$$5.00 = 0.05d + \cancel{3.00}$$

$$\frac{2.00}{0.05} = \frac{\cancel{0.05}d}{\cancel{0.05}} \qquad d = 40$$

The prices are equal for 40 km

#8 a.  $m = 2 \quad b = +1$

$$y = \underline{m}x + \underline{b}$$

b.  $2x + 3y = 6$   
 $-2x \qquad -2x$

$$\cancel{3y} = \frac{-2x + 6}{3}$$

$$y = -\frac{2}{3}x + 2 \quad \underline{m = -2/3}$$

$$\underline{b = +2}$$

c.  $4x - y = 2$   
 $-4x \qquad -4x$

$$\underline{-y} = \frac{-4x + 2}{-1}$$

$$y = 4x - 2 \quad \underline{m = 4}$$

$$\underline{b = -2}$$

#9 a)  $(\underset{x}{2}, \underset{y}{-1})$   $m=4$

$$y = mx + b$$

$$y = 4x + b$$

$$-1 = 4(2) + b$$

$$-1 = 8 + b$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$b = -9$$

$$y = 4x - 9$$

b)  $(\underset{x}{2}, \underset{y}{-5})$   $(\underset{x}{-1}, \underset{y}{4})$

$$y = mx + b$$

$$m = \frac{4 - (-5)}{-1 - 2} = \frac{9}{-3} = -3$$

$$y = -3x + b$$

$$-5 = -3(2) + b$$

$$-5 = -6 + b$$

$$\begin{array}{r} +6 \\ +6 \end{array}$$

$$b = +1$$

$$y = -3x + 1$$

c)  $y = \frac{2}{3}x + 5$

d) x-int = 2  $(2, 0)$   $(-1, 6)$

$$m = \frac{6 - 0}{-1 - 2} = \frac{6}{-3} = -2$$

$$y = -2x + 4$$

$$y = -2x + b$$

$$0 = -2(2) + b$$

$$0 = -4 + b$$

$$\begin{array}{r} +4 \\ +4 \end{array}$$

$$b = 4$$

#10 a.  $12x + 23 = 39$   
 $-23 \quad -23$

$$\frac{12x}{12} = \frac{16}{12}$$

$$x = \frac{16}{12}$$

b.  $\left(\frac{2x}{3} + \frac{1}{4}\right) = \left(\frac{3}{5}\right) \cdot 60$

$$\frac{120x}{3} + \frac{60}{4} = \frac{180}{5}$$

$$\rightarrow 40x + 15 = 36$$

$$-15 \quad -15$$

c.  $2n - 5 = n + 3n + 3$

$$2n - 5 = 4n + 3$$

$$-2n \quad -2n$$

$$-5 = 2n + 3$$

$$-3 \quad -3$$

$$\frac{-8}{2} = \frac{2n}{2} \quad n = -4$$

$$\frac{40x}{40} = \frac{21}{40}$$

$$x = \frac{21}{40}$$

d.  $4(m+2) - 3(m+3) = 5(m-1)$

$$4m + 8 - 3m - 9 = 5m - 5$$

$$1m - 1 = 5m - 5$$

$$-1m \quad -1m$$

$$-1 = 4m - 5$$

$$+5 \quad +5$$

$$\frac{4}{4} = \frac{4m}{4} \quad m = 1$$

e)  $(x+2)(x-3) = (x+4)(x+4)$

$$x^2 - 3x + 2x - 6 = x^2 + 4x + 4x + 16$$

$$x^2 - 1x - 6 = x^2 + 8x + 16$$

$$-x^2 \quad -x^2$$

$$-1x - 6 = 8x + 16$$

$$+1x \quad +1x$$

$$-6 = 9x + 16$$

$$-16 \quad -16$$

$$\frac{-22}{9} = \frac{9x}{9} \quad x = \frac{-22}{9}$$

There will not  
 be a question  
 like this one on  
 your exam :-

f)  $\left(\frac{2(x-4)}{3} + \frac{(x-2)}{2}\right) = (1) \cdot 6$

$$\frac{12(x-4)}{3} + \frac{6(x-2)}{2} = 6$$

$$4(x-4) + 3(x-2) = 6$$

$$4x - 16 + 3x - 6 = 6$$

$$7x - 22 = 6$$

$$+22 \quad +22$$

$$7x = 28$$

$$\frac{7}{7} \quad \frac{28}{7}$$

$$x = 4$$

# 11

a)  $m = Dv$

b)  $t = \frac{I}{P_r}$

c)  $b = \frac{a - 4c}{3}$



#12

a)  $x^2 - 1 = 0$

$$x = 1$$

$$x = -1$$

b)  $x^2 + 3x = 0$

$$x(x+3) = 0$$

$$x = 0$$

$$x = -3$$

c)  $(x-1)(x-2) = 0$

$$x = 1$$

$$x = 2$$

d)  $3x^2 = 5x + 12$

$$-5x \quad -5x$$

$$3x^2 - 5x = 12$$

$$-12 \quad -12$$

$$3x^2 - 5x - 12 = 0$$

$$3x^2 - 9x + 4x - 12 = 0$$

$$3x(x-3) + 4(x-3) = 0$$

$$(3x+4)(x-3) = 0$$

$$3x+4=0$$

$$-4 \quad -4$$

↑

$$x = 3$$

$$3x = -4 \quad x = -\frac{4}{3}$$

$$3x(-12) = -36$$

$$\begin{array}{c} \swarrow \quad \searrow \\ -9 \quad 4 \end{array}$$

#13. a)  $x^2 + 10x + 25$   
 $(x+5)(x+5)$

b)  $\overbrace{3x^2 + 28x + 9}$   
 $\underline{3x^2 + 27x + 1x + 9}$   
 $\underline{3x(x+9) + 1(x+9)}$   
 $(x+9)(3x+1)$

$3(9) = 27$   
 $\wedge$   
 $27 \quad 1$

c)  $3x^2 - 27$   
 $= 3(x^2 - 9)$

d)  $x^2 - 9x + 20$   
 $(x-4)(x-5)$

e)  $\overbrace{2x^2 - x - 10}$        $2(-10) = -20$   
 $2x^2 + 4x - 5x - 10$        $\wedge$   
 $-5 \quad 4$   
 $2x(x+2) - 5(x+2)$   
 $(2x-5)(x+2)$

$$\begin{aligned} \#13 \quad f) & \quad \overbrace{2y^2 - 7y - 15} \\ & \quad 2y^2 - 10y + 3y - 15 \\ & \quad 2y(y-5) + 3(y-5) \\ & \quad (2y+3)(y-5) \end{aligned}$$

$$\begin{aligned} 2(-15) &= -30 \\ & \quad \wedge \\ & \quad -10 \quad +3 \end{aligned}$$

$$\begin{aligned} g) & \quad \overbrace{8x^2 - 10x - 12} \\ & \quad 8x^2 - 16x + 6x - 12 \\ & \quad 8x(x-2) + 6(x-2) \\ & \quad (8x+6)(x-2) \end{aligned}$$

$$\begin{aligned} 8(-12) &= -96 \\ & \quad \wedge \\ & \quad -16 \quad 6 \end{aligned} \quad \begin{array}{r} 16 \\ + \\ \hline \end{array}$$